

REMARKS

Pending Claims

Claims 1, 3 and 4 remain pending. Claim 1 has been amended. Claims 2 and 5 have been canceled without prejudice or disclaimer. No new matter has been added.

English Translation of TW 412629

An English Abstract of the foreign document is attached hereto in accordance with the Examiner's request. The PTO-1449 Form filed on May 4, 2006, was incorrect, because it listed the application 412629 as JP (Japan). This application, however, is Taiwanese (TW). A new PTO-1449 Form is attached hereto.

Claim Rejections Under 35 U.S.C. §112

Claims 1-4 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention.

Claim 1 has been amended as suggested by the Examiner to positively recite all elements that form the claimed combination. Also the phrase "storage information that beforehand prescribes" has been amended to read "predetermined storage information that prescribes". It is submitted that the remaining claims 1, 3 and 4 now satisfy all the requirements of 35 USC § 112.

Claim Rejections Under 35 U.S.C. §103

Claims 1-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over JP 2003-314936, in view of Takeda, U.S. Patent No. 6,414,843.

For the reasons set forth hereafter, it is submitted that the amended claims 1, 3 and 4 are patentable.

Patentability of the Claims

Claim 1 has been amended to add the limitations of claim 2, to define the liquid cooling medium as having a viscosity that decreases as the temperature thereof increases and to otherwise further clarify the invention.

The features of the present invention as now claimed are that a cooling system for an electronic equipment is provided which cools a heat generating portion by a cooling liquid (antifreeze liquid) circulated by a pump and cools the cooling liquid by a fan. The pump and fan are operated with a predetermined voltage when a load on the electronic equipment is small. When the electronic equipment is under a high load which increases an amount of heat generation, the pump voltage is first raised to increase the cooling capacity. As the amount of heat generation increases to increase the temperature of the heat generating portion, the fan voltage is raised to increase the cooling capacity. By first raising the pump voltage, the raising of the driving voltage of the fan to increase the rotational speed of the fan may be delayed, thus also preventing the fan from making more noise.

With the present invention, whereby a liquid cooling system transfers heat by the

heat capacity of the cooling liquid to perform cooling, the temperature dependency of the viscosity of the cooling liquid is noted, so that the cooling capability is secured by setting the temperature of the cooling liquid high to improve a performance of a flow rate.

Conversely, the main reference relied upon, JP-A-2003-314936, discloses a cooling system which uses a “latent heat thermal storage medium” as a cooling liquid. Fig. 4 of the ‘936 reference shows the heat medium pump PM: ON and the blowing fan FN: OFF between the first temperature T_{s1} and the second temperature T_{s2} of the CPU temperature T_c , and the heat medium pump PM: ON and the blowing fan FN: ON when the CPU temperature T_c becomes equal to or greater than the second temperature T_{s2} . The ‘936 reference has the appearance of disclosing the pump operated prior to the fan. However, the heat medium pump PM: ON and the blowing fan FN: OFF settings are used in order to make the temperature distribution of the “latent heat thermal storage medium” even and effectively use the thermal capacity (see paragraph [0068]). This is a different technical idea from the present invention.

Accordingly, it is submitted that remaining claims 1, 3 and 4 are patentable.

In other words, the ‘936 reference discloses the specific control operation of the cooling apparatus using the “latent heat thermal storage medium” as a cooling liquid, so that this control operation is different from that of taking the viscosity of the cooling liquid into consideration as in the present invention.

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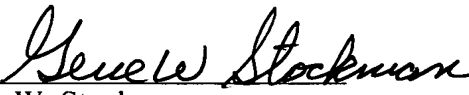
CONCLUSION

In view of the foregoing amendments and remarks, Applicants contend that the above-identified application is now in condition for allowance. Accordingly, reconsideration and reexamination are respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. ASA-1172).

Respectfully submitted,

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